

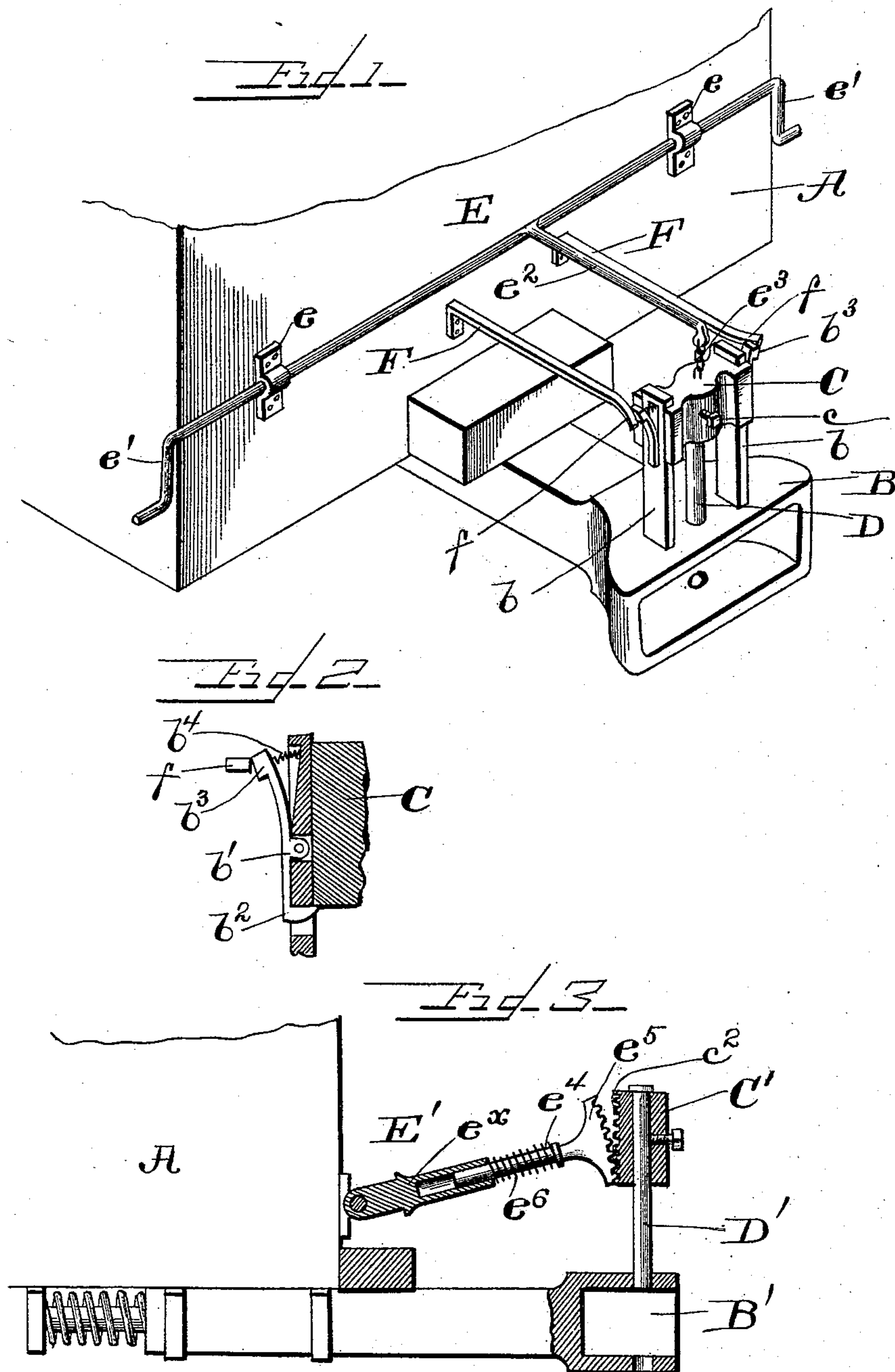
(No Model.)

2 Sheets—Sheet 1.

J. S. DERROUGH.  
CAR COUPLING.

No. 494,327.

Patented Mar. 28, 1893.



Witnesses  
G. A. Fahrenschmidt,  
Jessie D. Kinsbury

By James S. Derrough <sup>Inventor</sup>  
Whitaker & Trowest Attorneys.

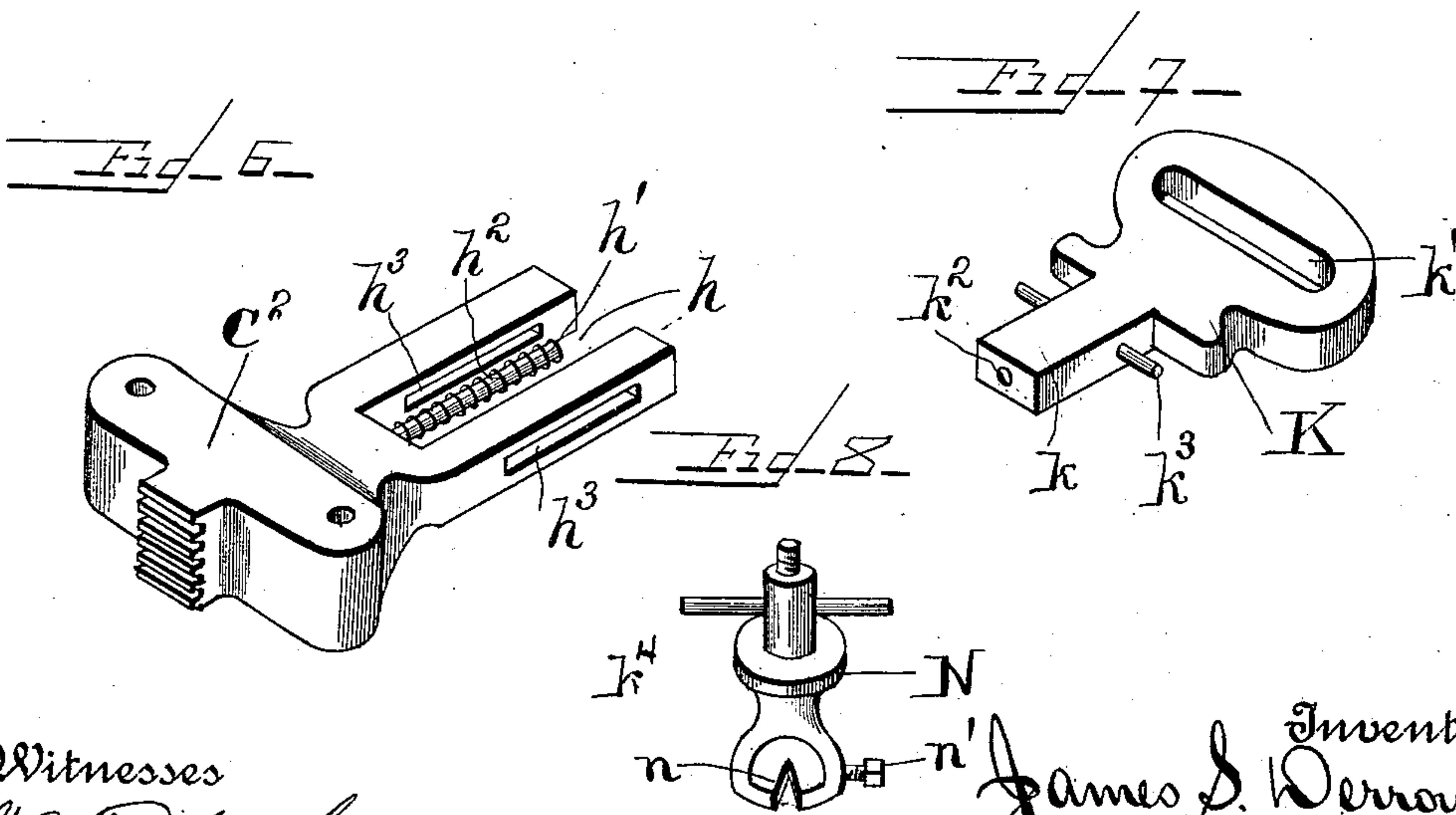
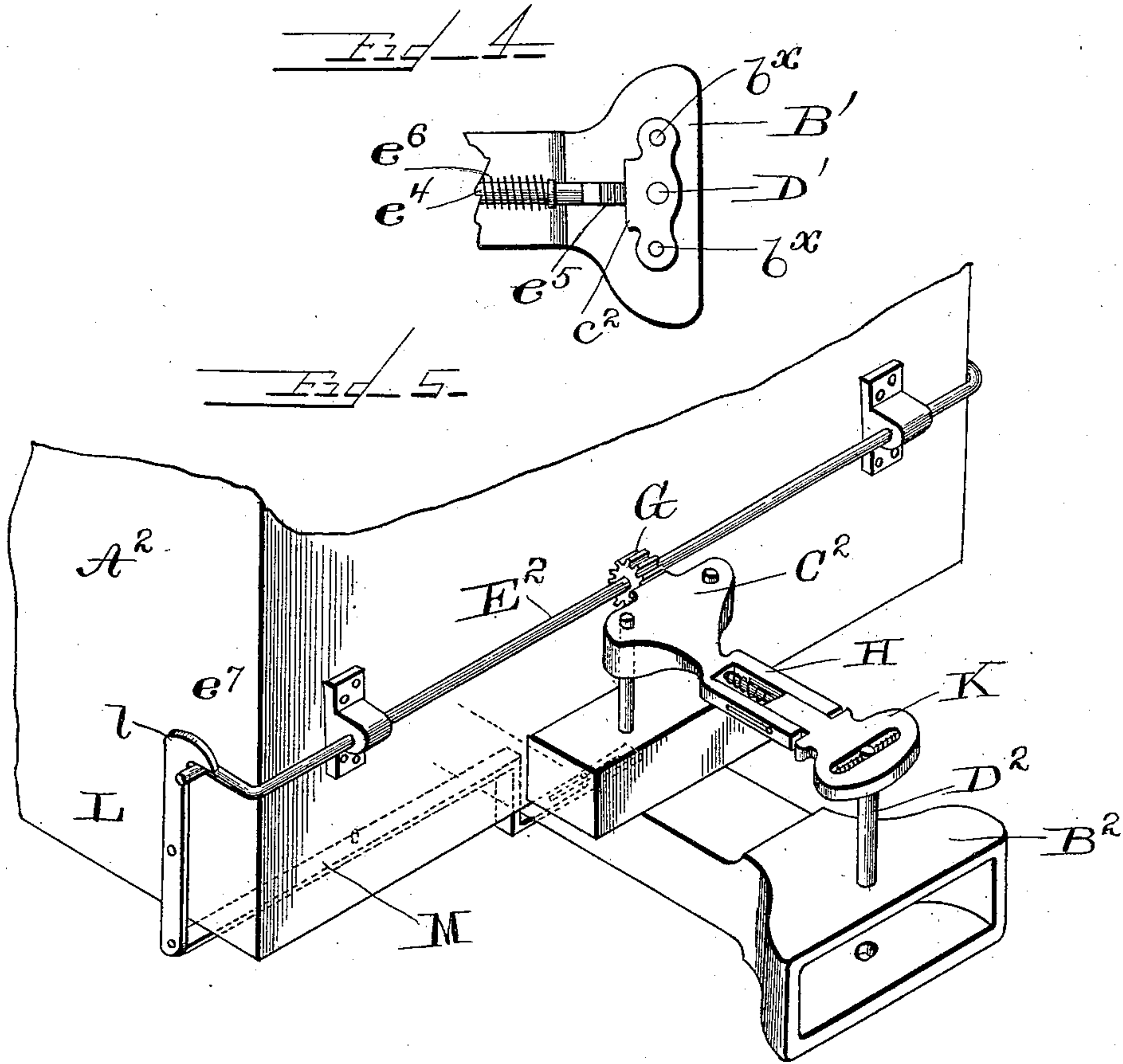
(No Model.)

2 Sheets—Sheet 2.

J. S. DERROUGH.  
CAR COUPLING.

No. 494,327.

Patented Mar. 28, 1893.



Witnesses  
*C. A. Taubenschmitt,*  
*Jerri D. Kingdon.*

Inventor  
*James S. Derrough*  
By  
*Whitaker & Frost* Attorneys.



# UNITED STATES PATENT OFFICE.

JAMES SULIVAN DERROUGH, OF WALNUT HILL, LOUISIANA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 494,327, dated March 28, 1893.

Application filed January 11, 1893. Serial No. 458,098. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES SULIVAN DERROUGH, a citizen of the United States, residing at Walnut Hill, in the county of Vernon and State of Louisiana, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention is an improvement in car couplers and consists in the novel features of construction and combination hereinafter described reference being had to the accompanying drawings which represent several forms in which I have contemplated embodying my invention, and said invention is fully disclosed in the following description and claims.

Referring to the said drawings Figure 1 represents a portion of one end of a car with a coupler embodying one form of my invention applied thereto. Fig. 3 represents a sectional detail view of a part of the mechanism. Fig. 3 is a side view partly in section showing a slightly modified form of coupler applied to a car. Fig. 4 is a top plan view of the draw head showing the form of mechanism illustrated in Fig. 3, applied thereto. Fig. 5 represents a portion of a car showing another slightly modified form of my coupler applied thereto. Figs. 6 and 7 are details of parts of the construction shown in Fig. 5, and Fig. 8 shows a detail of a pin holding device which may be employed with my coupler.

In the form of my invention shown in Figs. 1 and 2 A represents the car and B the drawhead secured thereto in the usual manner. The drawhead B is provided with a pair of vertical guides or standards  $b\ b$  rigidly secured thereto in any desired manner, and upon said guides is mounted a slide C having recessed end portions to engage the guides  $b\ b$  so that the slide may be moved vertically upon said guides. The slide C is provided with a recess in which is inserted the coupling pin D, the said recess being just above the apertures in the drawhead for the reception of the pin, and said pin is held in place in the slide by a set screw  $c$  or equivalent means. A shaft E is mounted in suitable bearings  $e\ e$  secured to the end of the car and is provided at each end with a crank  $e'$  so that the shaft may be operated without going

between the cars. The shaft E is provided adjacent to its center with a lifting arm  $e^2$  which is connected to the slide C by a chain or other flexible connection  $e^3$  so that by turning the shaft E the slide may be raised. Each of the guides  $b$  is provided with a spring lever catch  $b'$  shown in detail Fig. 2. This catch is pivotally mounted in the guide  $b$  and has a hook portion  $b^2$  extending through the guide and into the path of the slide, the lower side of said hook being beveled or curved as shown, so that it will be pushed back when the slide is raised but will spring out below the slide after it has been raised above the hook, and thus maintain the slide in an elevated position. The catch lever  $b'$  is also provided with a releasing arm  $b^3$  adapted to be pressed inward to release the hook of the catch and permit the slide to fall and a spring  $b^4$  engages the arm  $b^3$  and holds the hook  $b^2$  in operative position. A pair of rigid arms F F are secured to the car and project out to near the releasing arms of the catches. Where each arm is provided with a cam portion  $f\ f$ . The cam portions of the arms F F are just in rear of the releasing arms  $b^3\ b^3$  of the spring catches and when two cars are pushed together as they are in coupling, the drawhead B will be pushed in and the cam portions of the arms F F will engage the releasing arms of the catches and push them inwardly thus automatically releasing the slide C from engagement with the hooks  $b^2$  and permitting the slide to fall, and carry the pin into engagement with the apertures of the drawhead.

When it is desired to couple a car to one provided with this form of coupling the slide carrying the coupling pin is raised by means of the shaft E until it is caught and held by the spring catches. The other coupling will be provided with a link which will engage the drawhead opening and when the drawheads of the two cars come together the drawhead B will be pressed inward and the catches automatically released by the cam portions of arms F F as before described, when the slide will fall and bring the coupling pin into engagement with the drawhead and coupling link.

In the form of my invention shown in Figs. 3 and 4 the drawhead B' is provided with vertical standards or guides  $b^x$  upon which the slide C' is mounted, said slide being provided with apertures to receive the standards  $b^x$  as



shown in Fig. 4. The car is provided with a shaft  $E'$  similar to the shaft  $E$  in Fig. 1, which has a lifting arm  $e^x$  extending from a point adjacent to its center toward the slide  $C'$ . This arm is preferably recessed to receive a sliding rod  $e^4$ , a spring  $e^5$  engages the two parts and presses the rod  $e^4$  outwardly. The outer end of the rod  $e^4$  is provided with a gear segment  $e^5$  which engages a rack  $c^2$  on the rear face of the slide  $C'$ , which rack is considerably wider than the segment, as shown in Fig. 4 to allow for the lateral oscillations of the draw bar. The slide  $C'$  is provided with a coupling pin  $D'$  which is raised and lowered with the slide, the slide being guided by the vertical guides  $b^x$ .

In Figs. 5, 6 and 7 I have shown another slightly modified form of my invention. In these figures  $A^2$  represents the car and  $B^2$  the drawhead. Upon a part connected with the car as the horizontal block or beam  $a$  are vertical guides or standards which engage recesses in and guide a slide  $C^2$ . The rear face of slide  $C^2$  is provided with a rack  $c^3$  (see Fig. 6) which is engaged by a pinion  $G$  on a horizontal shaft  $E^2$  provided at each end with a crank  $E^6$ . The slide  $C^2$  is provided with an outwardly extending construction for holding and moving the coupling pin  $D^2$  which is so constructed as to allow for the backward and forward and also the lateral movements of the draw bar and pin. The slide  $C^2$  is provided with an arm  $H$  having an open slot or recess  $h$  therein for the reception of a stem  $k$  of an extension  $K$  which is provided with a transverse slot  $k'$ . In order to secure the parts  $H$  and  $K$  together the part  $H$  is provided with a rod or guide  $h'$  to engage a guiding recess  $k^2$  in the extension  $K$  and a cross bar  $k^3$  is passed through the stem  $k$  of the extension and engages slots  $h^3$  in the arm  $H$  which limit the movement of said extension with respect to the arm  $H$ . A spring  $h^2$  is interposed between the parts  $H$  and  $K$  preferably encircling the rod  $h'$  and this spring keeps the extension in its most extended position. The slot  $k'$  of the extension  $K$  is provided with a pin supporting rod  $k^4$  upon which the pin  $D^2$  slides, laterally and a spring  $k^5$  is placed on said rod at either side of the pin to allow for the lateral movements of draw bar and pin. At one side of the car is a pivoted locking lever  $L$ , see Fig. 5, which has a hook portion  $l$  in position to engage one of the cranks  $e^6$  when the crank has been turned far enough to cause the pinion  $G$  to raise the slide  $C^2$  a distance sufficient to lift the pin out of operative position so that a link may be inserted in the drawhead. Upon the bottom of the car is a pivoted lever  $M$  (shown in dotted lines in Fig. 5) which is secured at one end to one end of the catch lever  $L$  and at the other end has a slotted portion engaging a pin depending from the draw bar (as shown in Fig. 5.) The upper face of the hook  $l$  is curved or inclined and when the crank shaft  $E^2$  has been turned to raise the coupling

pin out of operative position, the crank  $e^6$  will engage the curved upper portion of the hook and pass over the end of the hook and be held against return movement. When the cars come together in coupling the draw bar  $B^2$  will be forced inwardly and the lever  $M$  will release the catch lever and permit the slide to fall and lower the pin into place. I also prefer to employ the catch lever  $L$  and lever  $M$  in connection with the forms shown in Figs. 3 and 4.

In Fig. 8 I have shown a pin holder adapted to be used in the extension  $K$  when ordinary coupling pins now in use are employed. The holder  $N$  is provided with a claw  $n$  to receive the head of the coupling pin and a set screw  $n'$  to secure it in place, and said holder is mounted in the transverse bar  $k^4$  in the same manner as the pin  $D^2$  in Fig. 5.

By the use of my improved coupling the operator need not go between the cars and the danger to life from this source is thus avoided.

I do not desire to be limited to my exact details of construction as variations may be made therein without departing from the spirit of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. The combination with a car, of a draw bar movable longitudinally with respect to the car, a slide mounted on the draw bar, and carrying a coupling pin, devices for elevating said slide and pin and holding them in an elevated position, and a tripping mechanism secured to the car, and adapted to be engaged by a part connected with the movable draw bar to release said slide and pin, when the draw bar is forced inward in the act of coupling substantially as described.
2. The combination with the car, of a draw bar movable longitudinally with respect to the car, a slide carrying a coupling pin mounted on said draw bar, a catch for retaining the slide in elevated position, a releasing device for said catch, secured to the car and adapted to be operated by the inward movement of the draw bar in coupling, to release said slide and pin, substantially as described.
3. The combination with the draw bar, of a slide carrying a coupling pin, vertical guides for said slide secured to the draw bar, devices for elevating said slide spring catches secured to said guides for engaging the slide and holding it in an elevated position, stationary arms secured to the car having cam portions adjacent to said spring catches, for automatically releasing the slide when the draw bar is forced inwardly in coupling, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES SULIVAN DERROUGH.

Witnesses:

T. J. NEWMAN,  
R. J. MCALPIN.